

SUBJECT:

Barnesville, OH GMAP Air Monitoring

PREPARED BY:

Marta Fuoco *WF*
Physical Scientist *12/06/16*
Air Monitoring and Analysis Section

**FIELD MONITORING
CONDUCTED BY:**

Scott Hamilton
Physical Scientist
Air Monitoring and Analysis Section

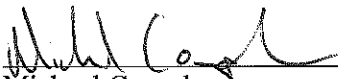
**FIELD MONITORING
REQUESTED BY:**

Natalie Topinka
Inspector
Air Enforcement and Compliance Assurance Branch

**DATES OF FIELD
MONITORING:**

July 25-26, 2016

REPORT AUTHORIZED BY:


Michael Compher *12/6/16*
Supervisor
Air Monitoring and Analysis Section

November 29, 2016

USEPA R5 monitored to evaluate the ambient air concentrations of hydrogen sulfide (H₂S) and methane (CH₄) in Barnesville, OH on July 25-26, 2016.

Region 5's Geospatial Monitoring of Air Pollution (GMAP) uses a Picarro G2204 cavity ringdown spectroscopy (CRDS) analyzer, SN 2267-BFADS2013. The data are integrated with global positioning system location information and meteorological parameters when available to quantify air pollutant concentrations. Additionally, the GMAP uses a DUVAS Model DV3000 SN UV3000-201502-1007 (or a backup unit DV3000 SN UV3000 SN 201502-1006) to collect BTEX, styrene, formaldehyde, and SO₂ ambient air concentration data. Additional information can be found in the SOP and March 26, 2015 Quality Assurance Project Plan (GMAP SOP R5-ARD-0002-r1; QAPP V3 0 2016-06-09). The monitored concentrations are compared to values identified in Table 1 below, or other values as applicable.

Table 1: Health Screening Data

Compound	Molecular Formula	CAS#	ATSDR Inhalation Minimum Risk Levels (MRLs)			Other
			Acute	Intermediate	Chronic	
Benzene	C ₆ H ₆	71-43-2	0.009 ppm	0.006	0.003 ppm	
Toluene	C ₇ H ₈	108-83-3	2 ppm	-	1 ppm	
Ethylbenzene	C ₈ H ₁₀	100-41-4	5 ppm	2 ppm	0.06	
Xylene	C ₈ H ₁₀	1330-20-7	2 ppm	0.6 ppm	0.05 ppm	
Sulfur Dioxide	SO ₂	7446-09-5	-	-	-	75 ppb ¹ ; 0.5 ppm ²
Formaldehyde	CH ₂ O	50-00-0	0.04 ppm	0.03 ppm	0.008 ppm	
Styrene	C ₈ H ₈	100-42-5	5 ppm	-	0.2 ppm	
Hydrogen Sulfide	H ₂ S	7783-06-4	0.07 ppm	0.02	-	
Methane	CH ₄	74-82-8	-	-	-	12,500 ppm ³

¹: Primary 1 hour NAAQS

²: Secondary 3 hour NAAQS

³: ATSDR's *de minimis* level for screening purposes of 1.25% of soil gas concentrations

Measurements were taken on July 25-26, 2016. Table 2 depicts maximum 1 second measured concentrations of H₂S (ppb), CH₄ (ppm), SO₂ (ppb), BEN (ppb), TOL (ppb), ETB (ppb), XYM (ppb), XYO (ppb), and XYP (ppb).

Concentrations above the detection limit of H₂S (ppb), SO₂ (ppb), BEN (ppb), ETB (ppb), XYM (ppb), and XYP (ppb) were measured in ambient air; toluene and o-xylene failed pre-QC checks and o-xylene failed post QC checks. All measured parameters were below the health screening levels found in Table 1 during this monitoring.

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Table 2: Maximum Values

Parameter	Concentration max
H2S (ppb)	33.40
CH4 (ppm)	- ¹
SO2 (ppb)	4.46
BEN (ppb)	9.96
TOL (ppb)	- ²
ETB (ppb)	54.73
XYM (ppb)	25.97
XYO (ppb)	- ²
XYP (ppb)	8.32

¹ - measured values below MDL

² - failed QC check

